

Claims

We claim:

1. A lift belt comprising:
an elastomeric body having a width w and a
thickness t and having a pulley engaging surface;
the elastomeric body having an aspect ratio w/t
that is greater than 1;
a tensile cord contained within the elastomeric
body and extending longitudinally;
the pulley engaging surface having a ribbed
profile; and
the ribbed profile having a rib with an angle of
approximately 90° .
2. The lift belt as in claim 1, wherein the tensile
cord comprises a conductive material having a
resistance.
3. The lift belt as in claim 2, wherein the resistance
of the tensile cord varies to indicate a lifting
belt load.
4. The lift belt as in claim 1 comprising a plurality
of ribs.
5. The lift belt as in claim 4 having an end.
6. The lift belt as in claim 3 comprising a plurality
of tensile cords.

7. The lift belt as in claim 3 further comprising:
a jacket on a surface opposite the pulley engaging
surface.

5 8. The lift belt as in claim 7, wherein the jacket
comprises nylon.

9. The lift belt as in claim 8 wherein a tensile cord
comprises a metallic material.

10 10. The lift belt as in claim 9 wherein a tensile cord
comprises steel.

15 11. The lift belt as in claim 1 further comprising:
an electrical circuit connected to a tensile cord
for measuring a tensile cord load.

20 12. The lift belt as in claim 1 further comprising:
an electrical circuit for detecting a tensile cord
failure.

25 13. An elevator lift system comprising:
a belt having an elastomeric body having a width w
and a thickness t and having a pulley engaging
surface;
the elastomeric body having an aspect ratio w/t
that is greater than 1;
a tensile cord contained within the elastomeric
body and extending longitudinally;
30 the pulley engaging surface having a ribbed
profile;

the ribbed profile having a rib with an angle of approximately 90°; and
at least one pulley having a ribbed profile engaged with the pulley engaging surface.

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14.The lift system as in claim 13, wherein the tensile cord comprises a conductive material having a resistance.

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15.The lift system as in claim 14, wherein the resistance of the tensile cord varies according to a lifting belt load.

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16.The lift system as in claim 13, wherein the pulley engaging surface comprises a plurality of ribs.

17.The lift system as in claim 16, wherein the belt has an end.

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18.The lift system as in claim 15 comprising a plurality of tensile cords.

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19.The lift system as in claim 15 further comprising:
a jacket on a surface opposite the pulley engaging surface.

20.The lift system as in claim 19, wherein the jacket comprises nylon.

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21.The lift system as in claim 18 wherein a tensile cord comprises a metallic material.

22.The lift system as in claim 21 wherein a tensile cord comprises steel.

23.The lift system as in claim 13 further comprising:
an electrical circuit connected to a tensile cord for measuring a tensile cord load.

24.The lift system as in claim 13 further comprising:
an electrical circuit for detecting a tensile cord failure.

25.The lift belt as in claim 1 further comprising
fibers extending from the pulley engaging surface.

26. A lift system comprising:
a belt having an elastomeric body having a width w and a thickness t and having a pulley engaging surface;
the elastomeric body having an aspect ratio w/t that is greater than 1;
a tensile cord contained within the elastomeric body and extending longitudinally;
the pulley engaging surface having a ribbed profile;
the ribbed profile having a rib with an angle of approximately 90° ;
at least one pulley having a ribbed profile engaged with the pulley engaging surface; and
an electric circuit for detecting a tensile cord load and for controlling operation of the system.

27. A method of operating a lift system comprising the steps of:

training a tensile cord over a pulley between a motor and a load;

measuring an electrical resistance of the tensile cord; and

controlling an operation of the motor according to the electrical resistance.

28. A lift belt comprising:

an elastomeric body having a width w and a thickness t and having a pulley engaging surface;

the elastomeric body having an aspect ratio w/t that is greater than 1;

a tensile cord contained within the elastomeric body and extending longitudinally;

the pulley engaging surface having a ribbed profile; and

the ribbed profile having a rib with a rib angle.

29. The lift belt as in claim 28, wherein the tensile cord comprises a conductive material having a resistance.

30. The lift belt as in claim 29, wherein the resistance of the tensile cord varies to indicate a lifting belt load.

31. The lift belt as in claim 28, wherein the rib angle is in the range of approximately 60° to 120° .

32. The lift belt as in claim 28, wherein the rib angle is approximately 90°.